

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 01/22/10 has been entered.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2, 7, 26, 27, 28 and 32 are rejected under 35 U.S.C. 102(b) as being unpatentable over Tatsuhiko et al. (JP 09-058650).

4. In regards to claims 1, 26 and 27 Tatsuhiko et al. teach a paper carton suitable for being filled with liquid contents (Paragraph 0001). Tatsuhiko et al. teach that the carton be comprised of a resin layer and a paper layer (Paragraph 0006). Tatsuhiko et

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al. teach a resin layer that can be an ethylene-vinyl alcohol copolymer (paragraph 0008). Tatsuhiko et al. teach polyethylene imine's can be used to coat the paper to promote adhesion (paragraph 0012), and further teach using DIKKU dry AC108 from Dainippin Ink & Chemicals (paragraph 0022). Given that Tatsuhiko et al. disclose use of polyethyleneimine known under the tradename AC-108 which is identical to the polyethyleneimine used in the present invention, it is clear that AC-108 would inherently possess formula as presently claimed. Tatsuhiko et al. also teach that adhesives can be used between resin layers and between resin and paper layers (paragraph 0015). While Tatsuhiko et al. are silent with regards to there being an adhesive layer on either side of the barrier layer, they do teach multiple resin layers and adhesive layers used therein to provide better adhesion. Therefore it would be obvious to one of ordinary skill in the art at the time of the invention to place an additional adhesive layer between the barrier layer and said other resin layers used in the multilayer embodiment (paragraph 0008). Tatsuhiko et al. teach that the resin layers can be formed by coextrusion (paragraph 0014). In regards to the limitation that the multi-resin layer is bondable at 290°C or lower at the outlet of the die, onto the base paper without thermal decomposition of the barrier resin layer, Examiner points out that as Tatsuhiko et al. teach the same materials as applicants in the same required order as applicants then this property is inherent and would necessarily be the same.

5. In regards to claim 2 Tatsuhiko et al. teach that the resin layer may be single or multilayer (paragraph 0009). The extra layers in a multilayer embodiment of the invention would place an extra layer on the opposite side of the barrier layer than the

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paper layer. As mentioned above Tatsuhiko et al. do teach the use of adhesives between resin layers.

6. In regards to claims 7 Tatsuhiko et al. teach the adhesive layer can comprise compounds such as ethylene methacrylic acid and a maleic anhydride polypropylene copolymer (paragraph 0015).

7. In regards to claim 28 while Tatsuhiko et al. are silent regarding using their containers to store soft drinks, they do mention that their containers are suitable for a wide variety of beverages (paragraph 0017), and it would have been obvious to one of ordinary skill in the art at the time of the invention to include soft drinks as beverages which may be stored by the container of Tatsuhiko et al.

8. In regards to claim 32 Tatsuhiko et al. teach that ethylene can be used as the polyolefin (paragraph 0015).

9. Claims 6, 17, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tatsuhiko et al. (JP 09-058650) in view of Akao et al. (US 5,358,785).

10. As stated above Tatsuhiko et al. teach a paper carton suitable for being filled with liquid, as well as adhesive layers made from carboxylic acid and polyolefin resins (paragraph 0015). However they are silent regarding the polymers being graft polymers.

11. Akao et al. teach multilayer laminated films, formed using extrusion processes, which are used in packaging (Akao column 1 line 6).

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12. In regards to claim 6 Akao et al. teach that polyolefin resins graft modified by carboxylic acids are known in the art as adhesive resins used to join other resins (Akao column 29 line 23-29).

13. In regards to claim 30 Tatsuhiko et al. teach that the adhesive can be a maleic anhydride (Tatsuhiko paragraph 0015).

14. In regards to claim 31 Tatsuhiko et al. teach that ethylene can be used as the polyolefin (Tatsuhiko paragraph 0015).

15. In regards to claim 17, as stated above Tatsuhiko et al. teach that the polyethylene imine can be used to coat the base to promote adhesion to the subsequent adhesive layer (Tatsuhiko Paragraph 0012). Akao et al. teach the polyolefin modified carboxylic acid adhesive layers, but is silent regarding the melt flow rate. However since all the limitations of the adhesive are taught, the melt flow rate would be within the same range of applicants because it is an inherent property.

16. One of ordinary skill in the art at the time of the invention would be motivated to modify the invention of Tatsuhiko et al. with the invention of Akao et al. because the invention of Akao et al. has great tear strength and puncture strength (Akao column 1 lines 20-22).

17. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tatsuhiko et al. (JP 09-058650) in view of Miyake et al. (US 5,942,320).

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18. As stated above Tatsuhiko et al. teach a paper carton suitable for being filled with liquid, as well as using ethylene-vinyl alcohol copolymer as the barrier layer. However they are silent regarding the saponification of the ethylene vinyl copolymer.

19. Miyake et al. teach a multilayer barrier composite film with gas barrier properties (column 1 lines 5-6).

20. In regards to claim 11 Miyake et al. teach that ethylene vinyl alcohol copolymers with a ethylene content of 5-50% mol and a saponification of not less than 99.5% are the preferred barrier resins for their invention (column 11 line 58 - column 12 line 24).

21. In regards to claim 12 Miyake et al. teach all limitations of the composition of the ethylene vinyl alcohol copolymer and therefore the melt flow rate would be inherent.

22. One of ordinary skill in the art at the time of the invention would be motivated to modify the invention of Tatsuhiko et al. with the invention of Miyake et al. because the invention of Miyake et al. offers prominent gas barrier properties against water vapor, oxygen and aromatic components (Miyake column 1 lines 6-8).

23. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tatsuhiko et al. (JP 09-058650) in view of Akao et al. (US 5,358,785) in further view of Miyake et al. (US 5,942,320).

24. As stated above Tatsuhiko et al. teach a paper container suitable for holding liquids, but are silent regarding the thickness of the individual layers.

25. As stated above Akao et al. taught the adhesive layers. Akao et al. further teach that the adhesive layers have a thickness of 1-50  $\mu\text{m}$  (column 16 lines 63-64). However

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Akao et al. are silent regarding the thickness for a barrier layer. As stated above one of ordinary skill in the art at the time of the invention would be motivated to modify the invention of Tatsuhiko et al. with the invention of Akao et al. because the invention of Akao et al. has great tear strength and puncture strength (Akao column 1 lines 20-22).

26. Miyake et al. teach the barrier layer described by applicants. They further teach that the barrier layer have a thickness that is between 0.05-15  $\mu\text{m}$  (column 14 lines 30-33).

27. One of ordinary skill in the art at the time of the invention would be motivated to modify the inventions of Tatsuhiko et al. and Akao et al. with the invention of Miyake et al. because the invention of Miyake et al. offers prominent gas barrier properties against water vapor, oxygen and aromatic components (Miyake column 1 lines 6-8).

28. Claims 14-16 and 19-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tatsuhiko et al. (JP 09-058650) in view of Frisk et al. (WO 00/44632 with US 6,974,612 relied upon as the translation).

29. As stated above Tatsuhiko et al. teach a paper container for holding liquids.

30. Tatsuhiko et al. teach an outer layer but are silent as to the thickness of the individual layers and use of applicant's materials.

31. Frisk et al. teach a package material for paper containers (column 1 lines 6 and 7).

32. In regard to claim 14 Frisk et al. teach an innermost thermoplastic layer which has a thickness of 20-50  $\mu\text{m}$  (Frisk column 5 line 9).

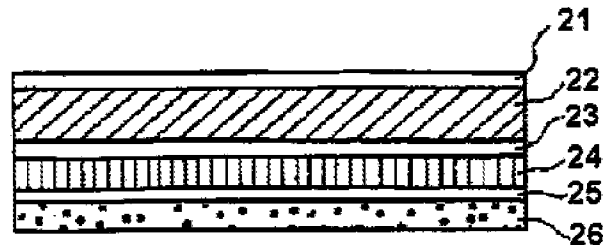
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33. In regards to claim 15 Frisk et al. teach that the innermost layer comprises a linear low density polyethylene (Frisk column 5 lines 26-27).

34. In regards to claim 16 Frisk et al. teach a melt flow index of 5-20 (Frisk column 5 line 18).

35. In regards to claim 19 and 20 Frisk et al. teach an outermost layer, which is on the opposite side of the paper base layer than the coextrusion laminated surface, which has a thickness of 10-25  $\mu\text{m}$  and a

melt flow index of 5-20 (Frisk column 4 line 33-41 and figure 1).



36. In regards to claim 21 Frisk et al. do not teach any layer that is closer to the inner part of a container than the innermost layer described above. Frisk et al. do teach that the containers are to be filled with liquid contents (Frisk column 1 line 20-26). Therefore it is obvious to one of ordinary skill in the art at the time of the invention that the innermost layer is a content contacting layer.

37. In regards to claim 25 Frisk et al. teach that the innermost layer comprises a linear low density polyethylene (Frisk column 5 lines 26-27).

38. In regards to claims 22, 23 and 24 Tatsuhiko et al. teach coextrusion, single extrusion and sandwich lamination as methods for forming the film of their invention (Tatsuhiko paragraph 0014). While they do not specify it for any of the specific layers, it would be well within the ability of one of ordinary skill in the art at the time of the invention to apply these methods to the innermost layer.

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39. In regards to claim 27 Frisk et al. teach the container can contain many various types of drinks but specify that the preferred embodiment of the invention is that the container contains a liquid food (Frisk column 13 line 3 - column 14 line 2). It is obvious to one of ordinary skill in the art at the time of the invention that a soft drink is a liquid food product and one of ordinary skill would be motivated to modify the invention so as to be able to contain these many various drinks.

### ***Response to Arguments***

40. In regards to arguments concerning the location of the Examiner notes that the rejection has been amended to teach the new limitation. It is also pointed out that with regards to most of the claims the addition of the second layer is a duplication of a part. It is noted that duplication of a part, in this case the adhesive layer, has no patentable significance unless a new and unexpected result is obtained (MPEP 2144.04 VI B). It is noted that in this instance the second adhesive layer is used to adhere a resin to said paper layer, which is a predictable result.

41. In response to Applicant's arguments regarding the temperature, while Tatsuhiko et al. may be silent with regards to the temperature, it is noted that the claim as written is requiring that at 290oC the laminate is bondable at the outlet of the die onto said base paper without thermal decomposition of the barrier resin layer. Therefore as the multi-resin layer of Tatsuhiko et al. Is made of the same material as that instantly claimed it must necessarily have the same properties, including being bondable at the required temperature without thermal decomposition.



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42. In response to Applicant's arguments regarding the additional adhesive layer being used to protect the barrier layer from oxidation, examiner points out that the rejection has been amended to highlight embodiments wherein both an adhesive layer and an additional resin layer would protect the barrier layer from oxidation.

43. Examiner notes that while Akao, Miyake and Frisk do not disclose all the features of the present claimed invention, they are used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, and in combination with the primary reference, discloses the presently claimed invention. If the secondary reference contained all the features of the present claimed invention, it would be identical to the present claimed invention, and there would be no need for secondary references.

### ***Conclusion***

53. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIK KASHNIKOW whose telephone number is (571)270-3475. The examiner can normally be reached on Monday-Friday 7:30-5:00PM EST (Second Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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